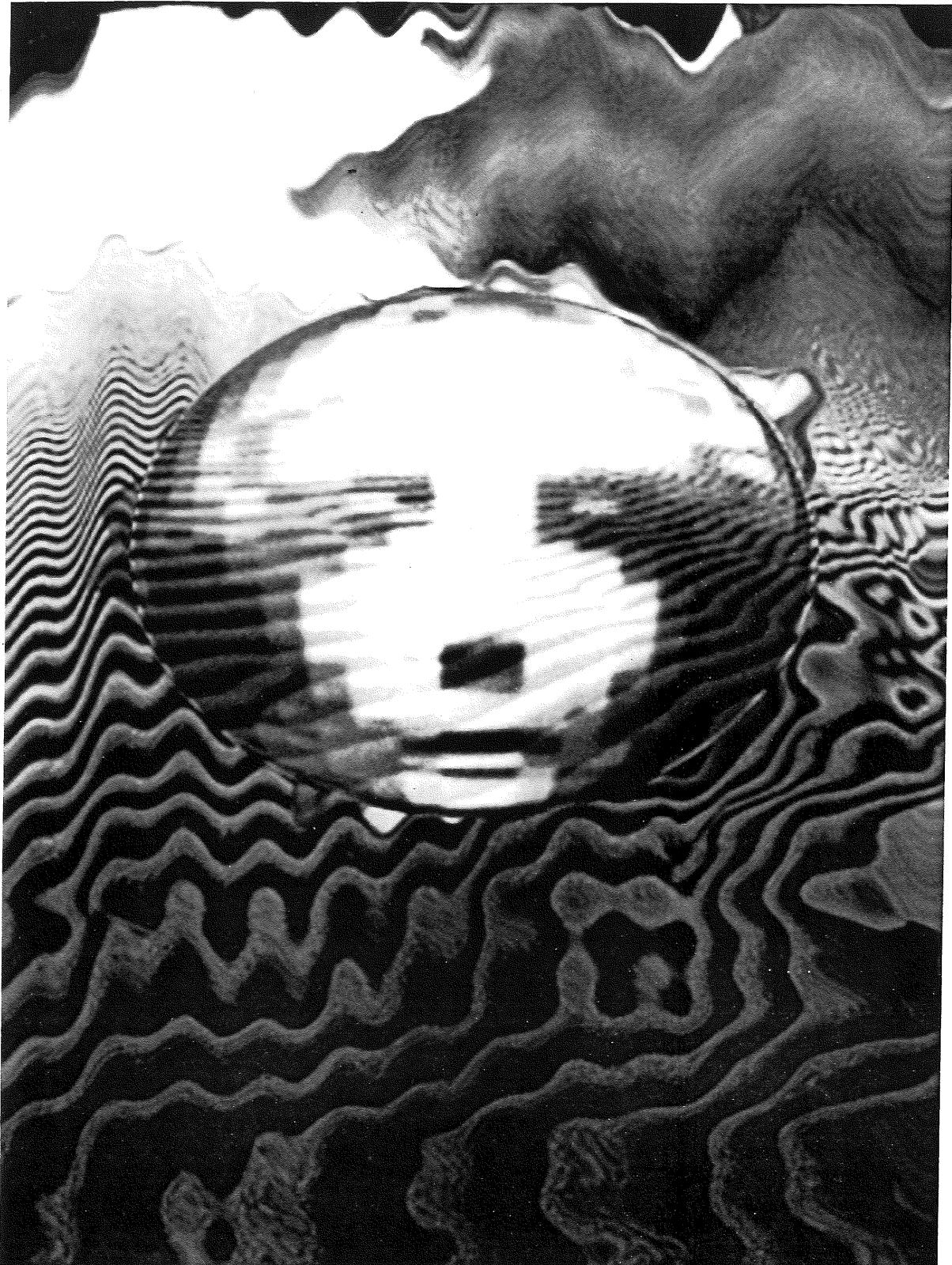


Artists Using Science and Technology

Ylem (Eye-lum): The exploding mass out of which the universe emerged in the Big Bang

Ylem Newsletter
Vol.12, No.2 February 1992



Mirage, computer art by Tarey Dunn

Ylem Forum

Color

March 4, 8 pm

McBean Theatre, The Exploratorium
3601 Lyon St., San Francisco

Color! The mystery and technology of rainbows.

Larry Finch: Canon Color Copier Prowess, including printing computer files. Finch is a Canon representative.

Mike McGuire: Conceptualizing Color. McGuire is doing engineering on a new color printer for Hewlett-Packard.

Craig Cassin: Rainbow-Coloring Titanium (actual demonstration). *Ylem Newsletter* readers know Cassin's computer art well.

Alex Nicoloff: Prismatic Light Video Works. The Nicoloffs have won many awards, including an NEA grant.

Anton Lechleiter: Synesthesia, seeing colors when hearing sound. Lechleiter teaches fine arts and is co-owner of the Heartline color company.

Plus: Colorful Art in the Lobby!

Future Forums: May 6 "Fantasy," July 1, "3-D," September 2, "Interactivity."

Giant Banana Feely Eye, by Jim Pallas. (detail)

This giant eye contains a TV camera to report on the people looking at it. Jim Pallas made the 15-foot-high sculpture out of technological and found objects for the Impression 5 Science Museum in Lansing, MI. Elsewhere in the museum, a video monitor displays what the *Giant Banana Feely Eye* sees.

Quiz

by Walter Alter

The format I have chosen for this quiz is the same one used by the popular network TV game show, "Jeopardy." All the contestants' answers are given in the form of a question, where the answer lies implicit within the question and, furthermore, and the answer implies new areas of further questioning.

The theme, "Artistic and Scientific work: Similarities, Differences, Interactions," has relevance at a time when the artist's role is being called into the question as creative when measured against the material creativity of Scientific Method, to wit...

1. Can an artist invent a process that will feed, clothe, or house a large segment of the world community? Or will the method of artistic creativity intrinsically result in the "immaterial"?
2. Was Leonardo Da Vinci a product of his time exclusively, or did his method embody a set of timeless universals that have been "rediscovered" and amplified upon during historic periods known as "renaissances"?
3. Does the Scientific Method exclude consideration of spiritual dimensions?
4. Are the leading edges of Technology and Contemporary Art pulling in different directions?

5. If an unintended use for an object or group of previously unrelated objects is discovered, is this discovery creative if the new use is more efficient, less efficient, or both?

6. Can a process be communicated in non-fluxing media?

7. Can or should an artist predict the effect of his creation will have upon the health and well-being of potential spectators and should she or he be responsible from an environmental standpoint?

8. Is there a scientific measure for art, or an artistic measure for science, apart from monetary, entertainment or ideological considerations?

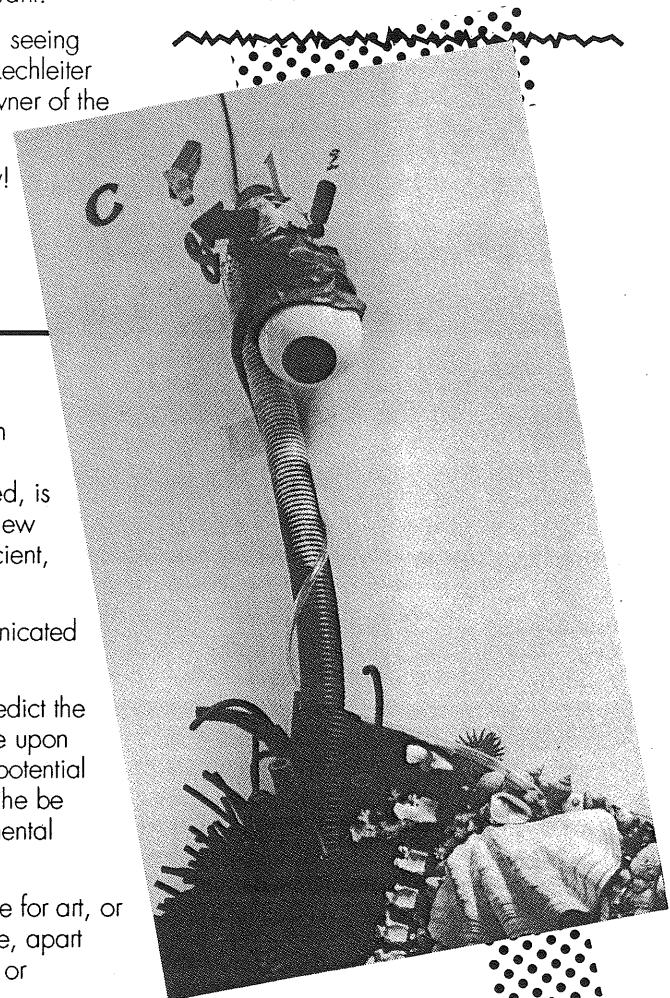
9. Will literacy and fluency with respect to technology issues on the part of artists synergize into a more effective art and conversely, will an equal fluency regarding art on the part of scientists synergize into a more effective science?

10. Can the method of team research and development be applied as effectively to the artists as it is in industry? If the product of scientific creativity is industrial production, can any analogies or lessons be drawn from the product of artistic creativity being entertainment?

11. Does the method of mind, employed in the investigation of "theory" in science, correspond in any way to the method of mind employed in the investigation in art?

12. Can artists and scientists begin to build a bridge of understanding over the issue of freedom of expression?

Please submit your exam books to: Walter Alter, Studio 26, 4001 San Leandro St., Oakland, CA 94601



SCAN '91: Interactivity, Activity, even Radioactivity

by Mike Mosher

Interactivity—the viewer getting her or his fingers into the work of art, pushing it around, playing with it or experiencing it in a multisensory way different from the traditional museum or gallery painting and sculpture experience—"Interactivity" was the stated theme of SCAN '91. This was the Eleventh Small Computers in the Arts Network Conference held November 15-17 at the University of the Arts in Philadelphia.

Now, any SCAN conference is a three-ring circus, with presentations organized in different rooms or buildings to emphasize sculptural and 3-D rendering, musical, sociopolitical or educational issues. The mix of artists and educators is worth a trip from the West coast. In many of their presentations, interactivity and its contributing currents could be said to fall into the categories of digitization of imagery, multimedia and hypermedia.

assemblages of computer-manipulated photographic imagery into new vistas, such as Washington D.C. as a profusely domed, minaret-punctuated Middle Eastern city. Steve Bradley's works used much compelling and politically-loaded imagery snapped directly off the television, samplings of the daily glut of generals and police and pundits and models slapped into his postmodern mix—yet printed on archival paper with attention to traditional printmaking standards of execution and quality. On another panel Tom Porett showed a Macromind Director-programmed sequence of digitized photographic images largely obtained by him by shooting with his camera on the streets of Philadelphia.

Music plus moving images, that seems to be the established standard of artists' multimedia, at least the standard subconsciously established in us all by

MTV. In this field, George Thompson and Larry Dunham's video showed hard-edged abstract computer graphics assembling, disassembling, and reassembling themselves over a surging musical soundtrack.

We all grow ever more demanding in our appetite for imagery: Fifteen years ago a single frame would have been considered sufficient for an easel painting, but now their plenitude over time with a musical base seems just right. Computer scientist (and excellent musician) Roger Dannenburg demonstrated intelligent software that played along with his clarinet while visually depicting the score despite mistakes or thematic variations.

Gerald Marks, the builder of 3-D exhibits in the San Francisco Exploratorium and elsewhere, demonstrated 3-D videos produced for the Rolling Stones' 1990 pay-TV special with his PullTime 3-D process, based on a principle first discovered by the German physicist Pulfrich in 1922. The band's performances were enhanced by a variety of clever effects, some on high-end video editing equipment and some on small personal computers. Projected on a large screen and viewed through the clear-and-dark specs, the polished result was an exciting and gripping and rock n' rollin' illusion of dimensionality (My God, Mick's lips are enveloping the auditorium!).

There were several new developments in artists' hypermedia, a big interest of my own, for I performed a HyperCard-assisted performance piece, "Christopher Cumulonimbus," with the help of Nancy Freeman and Mike Lieber. Later, I discussed HyperCard as a platform for performance and literary works. In Rachel Leventhal's "Kiosk," viewers stepped on a Nintendo Power Pad to activate various women speaking. The pad triggered a HyperTalk-programmed videodisk. Finally, Judson Rosebush, publisher of PIXEL magazine, discussed a HyperCard-driven multimedia piece he's developing about the first Atom Bomb test at Los Alamos, New Mexico nearly fifty years ago. He stunned the audience by bringing with him a heavy protective canister containing a piece of irradiated glass, originally just sand but fused by the terrific heat of the blast at ground zero. When, in his enthusiasm, Judson brought it out of the container, there were mutters around the room that in fifteen years the small-computer graphics field will grind to a halt when all of those assembled in the room succumb to cancer. Believe me, I hope a strong showing at SCAN 2006 proves the mutterers wrong!

For information on SCAN '92, contact Mark & Misako Scott, 5132 Hazel Avenue, Philadelphia, PA 19143. The Proceedings of SCAN '91, and previous SCAN Conferences, are available from them for \$15 a copy.



Many artists are using digital systems to seize and reassemble the visual world around them, and each artist sees a unique aspect of that world. On the "Computer Uses in the Fine Arts" panel were two examples: Judith Oak Andraka displayed witty and colorful landscapes that were actually

"The 1820s: Daniel Webster," an image from *Christopher Cumulonimbus*, a Macintosh-assisted multimedia performance by Mike Mosher © 1991.

Events

February 5, 8 pm Design, Cognition and Technology

Lecture by Kristina Hooper Woolsey, Director of the Apple Multimedia Lab, discusses the impact of multimedia in everyday situations. Her research is in how the highly interactive medium will change how we see the world. Free with museum admission, but seats limited, so reserve at number below: **The Exploratorium 3601 Lyon St. San Francisco; 415 561-0361**

February 8, 7:30 pm-midnight The Atomic Cafe

In the not-so-distant future, those deadly devices were finally unleashed during The Corporate Wars. In the aftermath, the Atomic Cafe will again offer respite to the survivors. The third "Atomic Cafe" will be held somewhere in the crumbling, bleak expanse that was once the "East Bay." You will be blindfolded and taken to an undisclosed underground location where you will see entertainment reminiscent of that enjoyed before the Fall. Occupancy limit, 75 people. You'll need 1) Tough, warm, post-atomic garb, 2) Post-atomic potluck (survival rations—but edible!), 3) \$5 for expenses, 4) Valid ID (no outstanding warrants), 5) No illegal substances, please. Meet at: **Ashby BART Station, NW corner of parking lot, space #351 (corner of M.L. King & Ashby) in Berkeley**

Computer drawings by Barbara Nessim from a HyperCard book

February 14-16

12th Annual Digital Valentine's Party

A weekend retreat conceived and organized by Ylem member Howard Pearlmuter. Held at Harbin Hot Springs, 100 miles north of San Francisco. This year's theme: *Creative Healing*. As always, what's hot in computer graphics will be discussed and demonstrated. And more—gentler ways to live on the earth, hypermedia and digital humor. Also at the 110-acre spa: hiking, vegetarian restaurant, clothing-optional springs and sauna. The event itself is free to the first 75 people who sign up; meals extra. (You can come just one day, but please sign up). Bring a sleeping bag. Lodgings: \$23 (space limited), \$30, \$50 (private room). Reservations and directions / carpool arrangements: **Howard, 707-987-9000**

February 14, 8:30 pm

Feeding Frenzy

Video feature that combines drama with computer animation, video fx and original music. The bizarre story of a man haunted by ghosts from his past—ordinary people who have slipped through the cracks. \$4 donation. **Theatre Concrete, 613 Laguna St., San Francisco, CA 94102; 415-252-5939**

February 15, 4:45 pm sharp!

Chinese New Year's Treasure Hunt

Several hours of vigorous activity searching for clues in dark alleys, dodging firecrackers and dragons—even if it rains. Potluck at unusual spot afterwards. Good running shoes, layers of clothes recommended. Also bring potluck dish, \$2 materials fee, small flashlight, a car if you have one. Meet on **Roof of parking garage at 5th & Mission Sts., 4th St. side (be prompt!!); Jeffrey Spaulding, 415-564-5047**

February 19, 7 pm

The Cutting Edge: Women in Computer Animation

State-of-the-art animations by women producers at Pixar, Industrial Light and Magic, Colossal Pictures' Liquid Television and Xaos. **The Exploratorium 3601 Lyon St. San Francisco; 415 563-7337**

February 19, 8 pm

Michael Snow Lecture

Filmmaker, sculptor, painter, musician, Michael Snow has most recently created holographic installations, one of which was seen at the Pompidou Center in Paris. He has been called "One of a little more than a dozen living inventors in film." His Toronto public sculpture, *Flight Stop*, is one of the most popular in the world. Admission, \$5. A

All events are in San Francisco Bay Area except where noted. Is your event or exhibit listed here? Send to Ylem Editor, 967 Morena, Palo Alto, CA 94303.

reception for his exhibit precedes the lecture. **San Francisco Art Institute, 800 Chestnut, San Francisco, CA 94133; 415-719-1588**

February 22-23, 2 pm

Before Mickey

Long before Mickey Mouse hit the scene in 1928, artists had been creating entertaining and sophisticated animated films. *Before Mickey* (1989), by Donald Crafton, is a mammoth international anthology of the early greats. Free with museum admission. **The Exploratorium 3601 Lyon St. San Francisco; 415 563-7337**

February 26-28

Media '92 (Los Angeles)

Multimedia trade show features two conferences: the high-end "Maximum Power Conference," \$695, \$595 before 2/1, and the low-end "Multimedia on a Shoestring," \$90, \$75 before 2/1. One of the sponsors is *Verbum* magazine, whose editor is an Ylem member. **Media '92, PO Box 4010, Deham, MA 02026; 800-433-1790 and ask for Star File #S-0222AL**

June 9-11

International Conference on Art and Mathematics (Albany, NY)

All media. Info: **Prof. Nat Friedman, Math Dept., SUNY, Albany, NY 12222; 518-442-4621; am92@bst.albany.edu**

Exhibits

February 8 - March 1

Bruce Beasley: New Sculpture (Davis, CA)

Ylem member Bruce Beasley makes complex forms in cast bronze, using a CAD system to design them. Reception: February 8, 7-9 pm. **John Natsoulas Gallery, 140 F St., Davis, CA; 916-756-3938**

February 20 - March 21

Michael Snow Exhibit

Filmmaker, sculptor, painter, musician, holography installation artist shows his work. Watch also for film screenings and workshops with Snow's participation. Reception, February 19, 7 pm. Lecture follows (see Events). Also, concurrent Snow exhibit at San Francisco Museum of Modern Art this month! **San Francisco Art Institute, 800 Chestnut, San Francisco, CA 94133; 415-719-1588**

Through June 30
Science in Depth

Fascinating new 3-D technology is shown by 40 large full-color PHSColograms. Pioneered by Ylem member Ellen Sandor and colleagues at Illinois Institute of Technology. For info on PHSColograms, call (Art)", 312-805-4810. **Visitor Center Gallery, NASA-Ames Lab, Moffett Field, CA; call for hours: 415-604-6449**

Opportunities

Deadline February 1
Mediawave '92

Spring festival seeks films, videos, performances, installations, experimental sound-image works made after 1989; also works about ethnic minorities. We are listing this because they say they will consider late entries. **Nemzetközi Vizualis Művészeti Alapítvány (International Visual Arts Foundation), 9028 Győr. Soproni utca 45, Hungary; tel. 36-96-16662; fax 36-96-10559**

Deadline February 3
Arts Festival of Atlanta

Competitive exhibits include "Bathhouse," whose theme is extended boundaries, work that pushes a material's normal limits. No entry fees. Jurors; Jan Brooks Lloyd metalsmith; William Schinsky, independent arts consultant. Festival takes place Sept. 19-27. 20% commission. **Arts festival of Atlanta, Inc., 501 Peachtree St., N.E., Atlanta, GA 30308; 404-885-1125.**

Deadline February 14
National Endowment for the Arts

Visual arts grants: Sculpture. **National Endowment for the Arts, Nancy Hanks center, 1100 Pennsylvania Ave. NW, Washington, DC 20506; 202-682-5448**

Deadline February 14
National Competition

\$1,900 awards. Open to U.S. artists. 2-D and 3-D media. \$15/2 slides, \$5/each additional. Juror, Cynthia Goodman, who is a fan of computer art. Show in April. Insurance. **Arts Center of Northern New Jersey, 250 Center St., New Milford, NJ 07646; 201-599-2992**

Deadline February 21
Utopia: Envisioning a Dream

This show is being organized "to generate a broad level of discussion of the components of an ideal socio/political reality. Work for the exhibition can be in any medium and not to be a permanent work of art....To the extent possible, all work received will be displayed." **The Forum Gallery, Jamestown Comm. College, 525 Falconer St., Jamestown, NY 14701; 716-665-9107**

Deadline February 28
Computer Animation '92

Computer animation categories: Science and industry, theatrical motion picture, corporate communication. Formats: 3/4" U-Matic, 1". Send credits, desc. in writing. Also, *slides* of computer graphics sought. Best pictures will be published. **Nadia Magnenat Thalmann, Centre Universitaire d'Informatique, 12 rue du Lac, CH-1207 Geneva, Switzerland; tel 41-22-787-6581; fax 41-22-735-3905; thalmann@uni2a.unige.ch**

Deadline February 29
Kinetic Works

Awards. Open to people living in the western U.S. Outdoor kinetic sculpture. \$15/entry, juried from actual work or from 3 slides/entry. Show May 2-June 30. **A New Leaf Garden Gallery, 1286 Gilman St., Berkeley, CA 94706; 510-525-7621.**

Deadline February 29
Prix Ars Electronica

\$100,000+ awards. Open to individuals, groups, companies, etc. Computer art categories: Animation, graphics, music, interactive. June festival, Linz, Austria. Winners must receive prize in person and give lecture (expenses paid). No fees. **Prix Ars Electronica '92, ORF-Prix Ars, Franckstrasse 2-A, A-4010 Linz, Austria, or c/o Rachel Carpenter, 82 Queva Vista, Novato, CA 94947; 415-892-8254**

Deadline February 29
Eat

Open to all. 2-D B/W media, 8 1/2" X 11". All works will be shown and will be sold for \$25 to raise money for the Regional Food Bank of Northeastern NY. This group works to feed the hungry and prevent food waste. No fees, no returns, documentation to all. Catalog to be produced, and artists in it will receive a free copy. **Harold Lohner, Russell Sage College Gallery, Schacht Fine Arts Center, Troy, NY 12180; 518-270-2248**

Deadline March 1
International Questar Awards

Categories include: Home audience videos, not-for-profit videos, special interest videos. Fees, \$110-150. Formats: VHS, 3/4", PAL. The International Questar Awards are presented by the International Academy of Communications Arts and Sciences, and are created to recognize outstanding achievement in video communications. The competition annually draws entries from over 30 countries around the world. Award winners are featured in the Golden Video Winners Reel and Creative and Production Directory, and are published in major trade publications. Large and small

organizations have an equal opportunity for winning. **International Questar Awards, 165 West 91st Street, New York, NY 10024-1358; 212-362-2353; fax 212-362-2479**

Deadline March 1
Live Oak Media

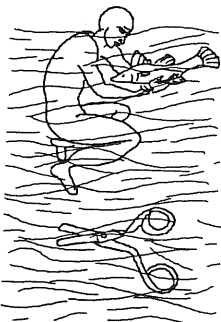
Reviewing film/video, audio/experimental music, computer graphics, digital photography for possible exhibition/presentation on radio, cable TV, and network TV, also teaching aids. \$5/entry; send with slides/disks/tapes, resume statement, SASE. **Live Oak Media, 847 S. Goodman St., Rochester, NY 14620; 716-442-8060.**

Deadline March 1
Just Plain Screwy: Metaphysical and Metaphorical Tools

Open to All. All media of or about tools (how about include computers?). Show June-Sept. No fees. Send up to 10 slides, resumé, SASE. **Charles A. Wustrum Museum of Fine Arts, 2519 Northwestern Ave., Racine, WI 53404; 414-636-9177**

Deadline March 1
Impakt: Festival voor Experimentele Kunst

Seeks films, videos, performances, installations for spring festival. Previous four festivals have featured some big names. **Impakt Festival, Bemurde Weerde WZ 3, 3513 BH Utrecht, Holland; tel. 31-30-317-457; fax 31-30-510-993**



Deadline March 2

Arts Festival of Atlanta

This deadline applies to the video work, site work and group exhibit components of the festival. No fee, 20% commission. **Arts festival of Atlanta, Inc., 501 Peachtree St., N.E., Atlanta, GA 30308; 404-885-1125.**

Deadline March 4

SIGGRAPH '92 Computer Fine Arts

2-D works and 3-D sculpture or static art for SIGGRAPH Art Show to take place during conference in Chicago July 26-31. **John Grimes, SIGGRAPH '92 Art Show Chair, Institute of Design/ITT, 10 W. 35th St., Chicago, IL 60616; 312-567-3250; fax 312-567-8905; grimes@siggraph.org**

National Endowment for the Arts

Send for the *NEA Guide*, which, among other things, is designed to find "those individuals who are interested in serving on our panels. We invite those who work in or are knowledgeable about the arts and the work of the Endowment to submit a resumé to our Office of Council and Panel Operations." **National Endowment for the Arts, Nancy Hanks Center, 1100 Pennsylvania Ave. NW, Washington, DC 20506; 202-682-5400**

Center on Contemporary Art

2-D and 3-D media, film/video, installation, performance, music, readings, interdisciplinary. 3 galleries, 2500 sq. ft. each, 15' ceilings. Performance area seats 300; access to other, larger theatres and outdoor sites. Send proposal, slides or video, resumé, SASE. **1309 First Ave, Seattle, WA 98101, 206-682-4568**

Animators

Animators, both computer and traditional, sought for exhibition in Park Avenue Atrium. Contact: **Ludwig Datane, Olympia and York, 12th floor Communications Dept., 237 Park Ave., NY, NY 10017; 212-850-9600**

Climate Theatre

Multi-media and interdisciplinary works, emphasis on performance art and nontraditional theatre. 2-D and 3-D media, installations, film/video, new music. Performance space seats 49; gallery ceiling 13'. Open to U.S. artists. No insurance. 10 exhibits each year. **252 Ninth St., San Francisco, CA 94103, 415-626-6422**

Community Education Center

Shows installations and time-arts; film/video, performance, dance, new music, readings, interdisciplinary. 2000 sq. ft. performance area seats 100, 15' ceiling. **3500 Lancaster Ave., Philadelphia, PA 19104, 215-387-1911**

Contemporary Arts Center

2 and 3-D media, film/video, installation, performance, dance, new music, readings, interdisciplinary. 15 exhibits per year. **900 Camp St., New Orleans, LA 70130, 504-523-1216**

Contemporary Arts Institute of Detroit

2 and 3-D media, film/video, performance. Artist-run organization, open to U.S. artists. 2 exhibits per year. **Nelson Smith, P.O. Box 43509 Ren Cen Station, Detroit, MI 48243-0509, 313-547-2116**

Needs and Offerings

February 20

Travel Assistant Urgently Needed

Barbara T. Smith, LA performance artist, seeks a tech assistant for the first leg of her *21st Century Odyssey* leaving the U.S. Feb. 24, returning July 7. Smith will provide airfare to India, Nepal, Thailand, Australia and a short stop in Hawaii. Person must be good natured, familiar with travel and able to assist in performances, media hookups, liaison and willing to schlep and be resourceful. Audio/video or computer experience a plus. Must pay for own visas, shots, meals, most lodging and personal needs: estimate \$3000. **Barbara T. Smith or Jan Williamson, 310-827-9159**

Art-Net e-mail art

In the same way that artists have long made use of the international mail network as a site for distributed artworks, ArtNet proposes an e-mail art network. Some computers can now receive graphics. Appoint yourself as an e-mailer. Choose a subject and write a proposal. Distribute this far and wide over the global Internet. Wait for submissions. Collate. Redistribute. For info and discussion forum, contact: **ArtNet@uk.ac.newcastle**

Project IDEALS

An e-mail forum is being organized that would enable students at various colleges to teleconference and simulate the high-level negotiations that take place in international affairs. Info: **Project IDEALS, English/Morgan, Box 870244, Univ. of Alabama, Tuscaloosa, AL 35487; 205-348-9494; fax 205-348-5298; crookall@ualvm.ua.edu**

Genes and Art

Genetic sequence data available for your art projects in traditional or computer media. From Clifford Pickover, an Ylem member who is editing the *Visual Display of Biological Information*. **Clifford Pickover, cliff@watson.ibm.com**

GIG Software Program for Colleges

A limited number of ElectroGIG programs to run on Silicon Graphics and DEC 5000 workstations are being offered to US accredited college-level schools. High quality print and animation, easy-to-use solid modelling and very fast ray tracing. Applications by faculty members on school letterhead only. **GIG USA, Inc., 7380 Sand Lake Rd. #390, Orlando, FL 32819, attn: Educational Software Program**

Temporary Ylem Consultant Needed

Volunteer needed to strategize on simplifying Ylem tasks. Involves some phoning and other networking. Hopefully, it will be a one-shot task to boost Trudy Myrrh Reagan's efforts on newsletter and program planning. Palo Alto area person preferred. Contact: **Trudy Myrrh Reagan, 967 Moreno, Palo Alto; 415-856-9593**

Geoffrey Chandler Cosmic Calendar

Features 12 air-brush paintings of stars by a nationally famous artist whose work has been featured on the covers of *Omni* and *Time*. \$10 plus postage. CA residents add sales tax. **Geoffrey Chandler, 251-A Bocana, San Francisco, CA 94121**

Center for Creative Imagining

Kodak's new school on the Maine coast. Offers classes, workshops and lectures in all types of activities relating to digital images. Famous faculty. Price range, \$20 to \$1000. For catalog write: **Center for Creative Imagining, Eastman Kodak Co., 51 Mechanic St., Camden, ME 04843; 1-800-428-7400**

Alternative Visions

This book is subtitled, "Distributing Independent Media in a Home Video World. \$12.95 + \$2.50 shipping. **Alternative Visions Book, Foundation for Independent Video & Film, 625 Broadway, 9th floor, NY, NY 10012**

Photo>Electronic Imaging

Formerly *PhotoMethods*, this journal will now cover electronic stills, videography, multimedia, and computer graphics manipulation. \$18 per yr. **Photo>Electronic Imaging, Alfred DeBat, 1090 Executive Way, Des Plaines, IL 60018**



Some calendar items reprinted from *Art Calendar*, PO Box 1040, Great Falls, VA 22066, *Rough Draft* (the San Francisco Cacaphony Society), *VideoWorks* (BAVC), and *FineArts Forum* e-mail.

Abstract Art: New Motifs, New Motives

by Harold McWhinnie

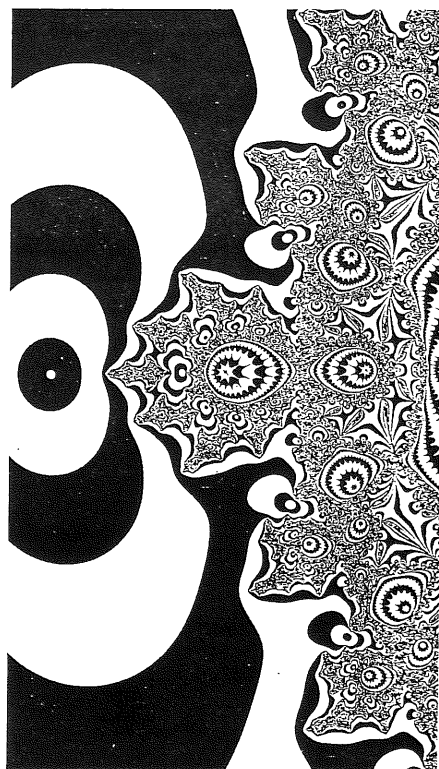
What were the motives of those who pioneered abstract art early in this century? Are the motives for exploring abstraction the same today?

Barbara Rose, considered this question in the *Journal of Art*, Summer 1991:

"Eighty years ago, Wassily Kandinsky painted what is generally acknowledged as the first non-representational work. His idea was that painting, like music, did not require subject matter. This inner, subjective, emotional world was supposed to correspond to spiritual states, transcending the material and the mundane. A liberated ability to tap the unconscious was presumably the result of this higher consciousness. Non-representational art grew up at odds with the scientific culture that has dominated our century. Even geometric art, with its claim to positivism, objectivity and its use of industrial engineering, proves to have been rooted initially in some form of neo-Platonic idealism. Whether improvisational or mechanical, abstraction held out as a part of its promise the possibility of a better, freer, more orderly Utopia.... Today abstraction is no longer identified with progress, as the notion of progress itself is revealed by current events to be another illusion without a future. Why then, are there so many vital, energetic artists working now?"

The post-modern artist as she visualizes her or him is one who begins a work with the intention to confront the unknown, stubbornly, with integrity. The artist feels a continuity with a long tradition, several millenia, but perhaps sees less clearly today the outcome or even purpose of this personal struggle.

I believe that the works Barbara Rose is considering are commentaries on the process itself. However, I see new abstractions emerging which by their very process analyse nature or reality. These may be a result of the late 20th century artist's involvements with new technologies and with ideas from science.



Chebyshev-Halley Map by Clifford Pickover. Computed for $T_r(x)$ for complex values of x .

In *Computers & Graphics* in 1990 I wrote,

"As Clifford Pickover of IBM has observed, the goal of the new chaos and computer section of *Computers & Graphics* is to provide visual demonstrations of complicated and beautiful structures which can arise in systems based upon simple rules.... One of the principal research tools from the study of chaos is the computer and the general area of computer graphics. The seemingly paradoxical combination of randomness and structure in mathematical, physical, biological, electrical, chemical and artistic systems are the stuff of the new theories about the universe, the origins of life, and the nature of modern reality as one approaches a new century.

Nowhere is the interest in chaos more exciting than in the area of computer graphics, where the scientists as well as the artist cooperate and inquire together

as in no other time in Western civilization since at least the Italian Renaissance. The use of the computer graphics and the computer in design and artistic processes has transformed the nature of the visible and human-built environments in this time of post-modernism.

Patterns of nature draw from simple rules which are primarily aesthetic, and unusual graphics are produced in the universe of math and art. This is an old union or symbiosis that too owes its heritage to artists such as de Vinci or Durer. Computer graphics allows the non-mathematician to experience some of the pleasure that mathematicians take in their work, and artists can better appreciate the very complicated but quite interesting graphical behavior of certain simple but elegant math formulas."

The role of the artist-designer seems to have shifted for us, the artist now becomes a spectator in the events of artistic creation. The artist's role is to observe those problems and their visible solutions as generated by the computer and to select those which hold an aesthetic interest. In one sense at least, the more classical role of the artist-creator has been reconstructed by the post-modern art critic. The present-day artist, like the art critic, becomes a spectator. What these random systems seem to offer to the artist is the opportunity to achieve a synthesis in that new order of rules and no rules, a lighter level of symmetry. In essence this seems to be the lesson to be learned from the use of new technologies, the value for the artist of those explorations into chaos and order which seems to have animated work in the sciences in the past decade. At no time since the Renaissance have artists and the men of science been in a unique position to explore together the larger questions of the universe, the origins of life, the beginnings of art and science. The science of chaos, the arts of chaos offer a new direction, a new model for aesthetic thought which is fundamentally different from the modern movement.

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sample newsletter to
(me) (my friends) at:

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ADDRESS _____

☐ Sample issue &
application only (free) ☐ I enclose \$ _____ for membership (see above)

Yearly membership rates:

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U.S. Institution **\$45**
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Canada/Mexico add **5 US\$** to U.S. rates; all
other countries add **15 US\$** to U.S. rates.

Membership includes 12 issues of the *Ylem
Newsletter* & listing in the *Artists Using
Science and Technology Directory* which
you will receive in the Autumn.

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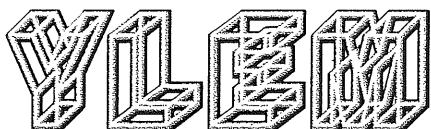
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*Earthheart, logo
of the Digital
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